

EMC filters

Feedthrough components

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Feedthrough components

General

Feedthrough components from TDK Electronics are used for EMI suppression at all electrical installations and equipment. This type series is also outstandingly well suited for communication systems and radio base stations. Because of broadband EMI suppression up to the GHz range, it prevents that external high frequency interference signals will be transmitted to the inside of the equipment and vice versa.

The essential features of this series are its modular design and the solder-free contacting technology developed by TDK Electronics. TDK contacting technology permits an uniform concentric contacting of the capacitor element and avoids any thermal stress associated by soldering. The result is an even higher insertion loss up to 40 GHz, and a high insulation resistance and a particularly compact case.

The modular system used in this new technology for feedthrough capacitors and filters allows the cost-effective implementation of a wide range of standard types. Other capacitance values can also be supplied for special applications upon request.



Feedthrough components assembled into a shielding wall.

The feedthrough filters are designed as a PI-circuit. They consist of two identical capacitive transverse elements and an inductive longitudinal element. In feedthrough capacitors, one capacitive transverse element is used.

At both versions, the conductor, carrying the operating current is connected concentrically and is run centrally through the capacitor. The counter electrode is contacted concentrically to the capacitor case. The concentric layout of the components allows high insertion loss values to be attained in a frequency range to above 1 GHz.

Safety note

Feedthrough components with high capacitances require the implementation of safety measures in line with the applicable specifications! (See also document "Technical information", section "Leakage current" and section "Mounting instructions".

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Mounting instructions

To fully utilize their RF properties, the feedthrough components must be mounted directly into shielding walls. The case must be contacted seamlessly (sealed against RF signals) to the shielding wall. This can be best done by screwing it into a threaded hole or bushing so that the contact is made via the threads.

Alternatively, the feedthrough components may be screwed into feed-through holes on the shielding wall by means of attachment nuts. The contact between case and the shielding wall is then set up via the contact surface of the thread.

Caution

Contacts with rigid copper busbars are not permitted in view of mechanical stresses of the bushings due to impacts and vibrations.

For types with screw connections, the connecting cable must be secured between two nuts to exclude a torque on the feedthrough pins. We recommend the use of two wrenches, of which one should be a torque wrench.

Recommended tightening torques for feedthrough components (capacitors, filters)

Thread dimensions	Tightening torque (Nm)	Tolerance (Nm)	Terminal
M2	0.2	+0.05	x
M3	0.6	+0.1	x
M4	1.2	+0.1	x
M5	2	+0.5	x
M6	3	+0.5	x
M8	5	+0.5	x
M10	8	+2	x
M12	12	+2	x
M16	28	+2	x
M18	35	+2	x

Thread dimensions	Tightening torque (Nm)	Tolerance (Nm)	Thread base attachment
M10 × 0.75	3	+0.5	x
M12 × 0.75	4	+0.5	x
M20 × 1	10	+1	x
M24 × 1.5	12	+1.5	x
M32 × 1.5	24	+2.5	x

